

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: Manfred GERRESHEIM et al Conf.:  
Appl. No.: NEW Group: UNASSIGNED  
Filed: February 8, 2002 Examiner: UNASSIGNED  
For: PREPARATION FOR SEALING PUNCTURED TIRES  
AND APPARATUS FOR THE SEALING AND PUMPING  
UP OF TIRES

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents  
Washington, DC 20231

February 12, 2002

Sir:

The following preliminary amendments and remarks are respectfully submitted in connection with the above-identified application.

IN THE SPECIFICATION:

Please insert on page 1, between lines 5 and 6, with the following:

--BACKGROUND OF THE INVENTION--

Please replace the paragraph beginning on page 2, line 7, with the following rewritten paragraph:

--When a tire puncture occurs, the sealing preparation is sprayed from the spray can into the interior of the tire through the

tire valve and the tire is reinflated by means of the proplellant gas to a specific pressure which is of different levels depending on the leak. The tire is then driven a few kilometers, dependent on the nature of the defect, to distribute the sealing preparation in the interior of the tire and to seal off the defect.--

Please replace the paragraph beginning on page 2, line 16, with the following rewritten paragraph:

--In another apparatus, the sealing preparation is located in a compressible flask which is connected via an adapter to the tire valve with the valve insert having been previously removed. The sealing preparation is then sprayed into the tire by pressing the flask. After the insertion of the valve insert, the tire is then pumped up again to a specific pressure with the aid of carbon dioxide cartridges.--

Please insert on page 3, between lines 19 and 20, with the following:

--SUMMARY OF THE INVENTION--

Please replace the paragraph beginning on page 4, line 8, with the following rewritten paragraph:

--According to one aspect of the present invention, a preparation for sealing a tire with a puncture comprises natural

rubber latex. Preferably, the sealing preparation of the invention contains, apart from the natural rubber latex, an adhesive resin compatible with the rubber latex.--

Please replace the paragraph beginning on page 4, line 21, and spanning to page 5, line 8, with the following rewritten paragraph:

--For the adhesive resin, "compatible" signifies that the adhesive resin does not cause any coagulation of the rubber latex. As adhesive resins, there are to be understood resins which improve the ability of the rubber latex to bond to the tire. By way of example, resins can be used which are added to elastomers as tackifiers. The adhesives resins are preferably added in the form of aqueous dispersions or emulsions of rubber latex. As a rule, these are aqueous dispersions. Particularly preferred are terpene-phenol-resins.--

Please replace the paragraph beginning on page 5, line 9, with the following rewritten paragraph:

--Latex which has been concentrated by centrifuging or vaporization can also be used as natural rubber latex.--

Please replace the paragraph beginning on page 7, line 1, with the following rewritten paragraph:

--A frost protection agent is preferably added to the sealing

preparations of the invention. Customary frost protection agents can be used, such as high boiling point, water soluble, difficult to ignite organic liquids, such as glycols, preferably ethylene glycol. Polyethylene glycols with molecular masses up to 300 to 400 g/mol can also be used. Through this addition, one obtains a good sealing at low temperatures, even when these are associated with the effects of wetness.--

Please replace the paragraph beginning on page 7, line 11, and spanning to page 8, line 6, with the following rewritten paragraph:

--For the thinning of the sealing preparations, a dispersion agent can be used, as a rule, water. Furthermore, the sealing preparations of the invention can contain customary dispersants, emulsifying agents, foam stabilizers and/or pH-regulators, such as ammonia or sodium hydroxide. Moreover, it can be of advantage for rapid sealing and for the sealing of larger holes to use one or more fillers. Suitable fillers are, for example, silicic acid, chalk, carbon black, fibrous materials, such as natural fibers, chemical fibers of natural polymers or synthetic fibers, glass fiber reinforced plastics, polystyrene particles, rubber dust which is produced by comminution of vulcanized products such as tires, saw dust, moss rubber particles, particles of rigid foam for cut flowers and the like. Particularly preferred are fibrous materials, small

rubber particles in combination with silicic acids and glass fiber reinforced plastics.--

Please replace the paragraph beginning on page 8, line 16, and spanning to page 9, line 11, with the following rewritten paragraph:

--The solid component of the sealing preparation of the invention can amount to approximately 40 to 70% by weight, preferably to 45 to 55% by weight, and particularly preferably to about 50% by weight of the sealing preparation. With the sealing preparation without adhesive resins, the solid component comprises principally rubber. With the sealing preparation with adhesive resin, the solid material component additionally contains the resin, providing it is a solid resin. The liquid component of the sealing preparation without adhesive resins consists of the carrier agent water for the rubber, and optionally of further liquid components, such as the frost protection agent and the dispersion agent used for thinning, preferably water. With the sealing preparation with the adhesive resin, the dispersion agent or emulsifying agent for the adhesive resin, preferably water, also belongs to the liquid component as does, if necessary, the liquid adhesive resin.--

Please replace the paragraph beginning on page 9, line 12, with the following rewritten paragraph:

--If fillers are used, then they are added to the sealing

preparation in a quantity of about 20 to 200g per liter of sealing preparation, preferably 60 to 100g, or are put in the tire during fitting.--

Please replace the paragraph beginning on page 10, line 7, with the following rewritten paragraph:

--Accordingly, a second aspect of the invention provides an apparatus wherein the pressure source is a liquefied gas which is contained with the sealing preparation in the pressure-tight container.--

Please replace the paragraph beginning on page 10, line 11, with the following rewritten paragraph:

--Thus in use, one embodiment provides a hose with a screw adapter for the tire valve which is attached to the outlet valve of the pressure-tight container. A liquefied gas which is contained with the sealing preparation in the pressure-tight container serves as the pressure source. Because the liquefied gas, for example a propane/butane mixture, is not capable of operating at low temperatures and/or the sealing preparation freezes, then the content of the pressure-tight container, that is to say the spray can, is heated up with the heat source to ensure effective operation.--

Please replace the paragraph beginning on page 11, line 1, with the following rewritten paragraph:

--The same method is used in the following embodiment. The pressure course is located outside the pressure-tight container, separate from the sealing preparation and can, for example, be an air compressor or a pressure flask or several gas cartridges with liquefied or compressed gas. With this embodiment, the pressure-tight container has a gas inlet through which the gas from the pressure flask or from the gas cartridge, or compressed air from the compressor, is introduced into the pressure-tight container. For the purpose, a hose-like connection is provided if required, with a pressure relief valve and a throughflow restrictor between the gas inlet of the pressure-tight container and the pressure flask of the air compressor.--

Please replace the paragraph beginning on page 11, line 17, and spanning to page 12, line 6, with the following rewritten paragraph:

--In the case of a puncture, the sealing valve in the pressure-tight container is heated up by the heat source, insofar as it has frozen up, as was described above for the spray can. The pressure-tight container is connected to the tire valve via a hose with a screw adapter connected to the outlet valve of the pressure-tight container. Through the gas introduced from the pressure flask or from the compressor into the pressure-tight container, the sealing

preparation is sprayed via the outlet valve and the hose into the interior of the tire. Insofar as the gas in the pressure flask is not capable of operating at low temperatures, the pressure flask can also be heated up by a heat source.--

Please replace the paragraph beginning on page 13, line 3, with the following rewritten paragraph:

--Furthermore, the heat source can consist of at least two mutually separated substances which, on mixing, liberate heat of reaction, such as for example heat of neutralization, heat of solution or heat of hydration. Thus, if required, calcium chloride, by way of example, can be dispensed into a water containing pad or cushion which is, for example, wound around the pressure-tight container or the pressure flask to be heated up. Through the heat of hydration, the sealing preparation and/or the propellant can be heated up to a temperature at which they are capable of functioning. Naturally, other devices can also be used in place of the cushion, for example, an upwardly open vessel with a jacket filled with water in which the pressure-tight container or the pressure flask which has to be warmed up is placed as required.--

Please replace the paragraph beginning on page 13, line 20, and spanning to page 14, line 7 with the following rewritten paragraph:

--A latent heat source which liberates heat on its conversion



can also be used as a heat source. In this case, a cushion can also be considered which contains the latent heat source. Substances, which generate heat with a change of the state of aggregation or on phase transitions, can be used as the latent heat source. Thus, for example, cushions can be used which contain a sodium acetate solution. On pressing a metallic platelet, which is likewise contained in the cushion, the sodium acetate crystallizes and the heat of crystallization is liberated.--

Please replace the paragraph beginning on page 14, line 8, with the following rewritten paragraph:

--In another embodiment, the apparatus has a pressure-tight container which is provided with an outlet valve and an outlet quantity restrictor and which contains a sealing preparation and liquefied sulphur hexafluoride or dinitrogenoxide as a pressure source for the introduction of the sealing preparation out of the pressure-tight container into the interior of the tire and also for the reinflation of the tire.--

Please replace the paragraph beginning on page 15, line 1, with the following rewritten paragraph:

--For dinitrogenoxide, the pressure-tight container must be suitable for operating pressures of about 50 bar. These propellants have the advantage that they are not combustible and can also be

used at low temperatures without the aid of a heat source.--

Please replace the paragraph beginning on page 15, line 6, with the following rewritten paragraph:

--The manner of operation is the same as in a spray can. In this can, the outlet valve is also provided with a hose which has a screw adapter for the tire valve at its end. In addition, an outlet quantity restrictor is provided at the outlet valve in order to be able to effect metering of the sealing preparation at high pressures.--

Please replace the paragraph beginning on page 15, line 13, and spanning to page 16, line 7, with the following rewritten paragraph:

--With another embodiment in accordance with the invention, the apparatus has a pressure-tight container containing a sealing preparation and having an outlet valve for the sealing preparation and also a gas inlet to which a pressure source can be connected or is connected from which pressurized gas can be introduced into the pressure-tight container via the gas inlet. An air compressor or a portable pressure vessel of about 5 to 8 liter volume which contains the air in compressed form can be used as the pressure source. The internal pressure of the tank amounts to about 8 to 10 bar. The pressure tank can, for example, be filled up at an air line at a filling station. Furthermore, a pressure flask or several gas

cartridges with liquefied or compressed gas can be used as the pressure source. Propane/butane mixtures, sodium hexafluoride, dinitrogenoxide and others can also be used as gases.--

Please replace the paragraph beginning on page 16, line 11, and spanning to page 17, line 4, with the following rewritten paragraph:

--When a puncture occurs, the pressure-tight container is connected to the tire valve. For this purpose, the screw adapter which is located at the end of the hose connected to the outlet valve of the pressure-tight container is screwed onto the tire valve. Insofar as a sealing preparation and/or a gas, designated a propellant gas in the following, are used which are not capable of operation at low temperatures, and if the tire must be sealed at such temperatures, then the pressure-tight container which contains the sealing preparation and the propellant gas, or the pressure-tight container containing only the sealing preparation and the pressure flask with the propellant gas, can be brought to an operating temperature with the aid of a previously described heat source. This heating up can also be carried out prior to connecting the tire valve and the pressure-tight container.--

Please replace the paragraph beginning on page 17, line 5, and spanning to page 18, line 8, with the following rewritten paragraph:

--On opening of the outlet valve, the sealing preparation is

sprayed into the interior of the tire by the propellant gas which is either located in the pressure-tight container or is supplied to the pressure-tight container via its inlet valve from the pressure flask and the tire is pumped up to a pressure which depends on the size of the leak. In the embodiment with an air compressor or pressure tank as a pressure source, air is supplied to the pressure-tight container via its inlet valve on opening of the outlet valve in order to spray the sealing preparation into the interior of the tire to pump up the tire. Thereafter, the apparatus is unscrewed from the tire valve and the tire is driven for a few kilometers so that the sealing preparation is distributed around the interior of the tire and the leak is sealed off. Thereafter, the apparatus is again connected to the tire valve and again the tire is pumped up to its desired pressure by the propellant gas which is either present in the pressure-tight container or is supplied to it from the pressure flask via the inlet valve. Instead of using a pressure flask, several gas cartridges can also be used as a pressure source in order to obtain the desired pressure. With the device with an air compressor or pressure tank, the tire is pumped up to its desired pressure with air which is supplied to the tire via the pressure-tight container. With bicycles, an air pump can also be used.--

Please insert on page 18, between lines 12 and 13 with the following:

--BRIEF DESCRIPTION OF THE INVENTION--

Please insert on page 19, before line 1, with the following:

--DETAILED DESCRIPTION OF THE EMBODIMENTS--

Please replace the paragraph beginning on page 19, line 14, with the following rewritten paragraph:

--The pressure-tight container is provided with a water-filled jacket 11 which has filling stubs 12. Calcium chloride can be filled into this filling stub 12 as required. If the sealing preparation has frozen up at lower temperature, then it can be heated up in this way, by the heat of hydration which is liberated, to a temperature at which it is able to operate. The air compressor 1 is provided with an electrical cable 13, the plug 14 of which fits into the cigarette lighter.--

Please replace the paragraph beginning on page 20, line 18, and spanning to page 21, line 11, with the following rewritten paragraph:

--Figure 2 shows another embodiment in which parts identical to Figure 1 are designated with the same reference numerals. In this device, a pressure flask 15 is provided at the pressure source and

contains dinitrogenoxide or sulphur hexafluoride as the propellant gas. The pressure flask with the liquefied propellant gas is provided with a gas outlet 16 in which are located a shut-off valve 17, by which the throughflow quantity of the propellant gas can be simultaneously set, and also a pressure relief valve 18. The gas outlet 16 is connected to the gas inlet 3 at the pressure-tight container 4. The outlet valve 7 for the sealing preparation 6 is connected to a riser tube 19. Furthermore, the pressure-tight container 4 stands in a vessel 20, the wall of which is filled with water or can be filled with water to which calcium chloride can be added if required in order to heat up the sealing preparation 6.--

Please replace the paragraph beginning on page 23, line 8, with the following rewritten paragraph:

--The test results are summarized in the following Table 1.--

Please insert on page 23 after current last line, with the following rewritten paragraph:

--The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.--

In the Claims:

Please add the following new claims.

--12. (NEW) An apparatus for the sealing of punctures and pumping up of tires, comprising a pressure-tight container containing a sealing preparation, the container having an outlet valve for the sealing preparation, a source of pressure for introducing the sealing preparation from the pressure-tight container into the interior of the tire and for the reinflation of the tire and also with a source of heat for heating up the sealing preparation in the pressure-tight container and/or for the heating up of the pressure source.--

--13. (NEW) An apparatus in accordance with claim 12, wherein the pressure source is a liquefied gas which is contained with the sealing preparation in the pressure-tight container.--

--14. (NEW) A apparatus in accordance with claim 12, wherein the pressure-tight container has a gas inlet and the pressure source is an air compressor with which air under pressure can be introduced via the gas inlet into the pressure-tight container.--

--15. (NEW) An apparatus in accordance with claim 13, wherein the pressure-tight container has a gas inlet and the pressure source is at least one pressure bottle which contains the liquefied or

compressed gas which is introducable via the gas inlet into the pressure-tight container.--

--16. (NEW) An apparatus in accordance with claim 12, wherein the heat source is a heated cushion with resistance to heating.--

--17. (NEW) An apparatus in accordance with claim 12, wherein the heat source has at least two substances separated from one another which release heat when mixed.--

--18. (NEW) An apparatus in accordance with claim 12, wherein the heat source is a latent heat store which releases heat when it is converted.--

--19. (NEW) An apparatus for the sealing off of and pumping up of tires with tire troubles comprising a pressure-tight container which is provided with (a) an outlet valve for the sealing preparation contained in said container, and (b) an outlet quantity restrictor for the sealing preparation, and (c) liquefied sulphur hexafluoride as the pressure source for the introduction of the sealing preparation out of the pressure-tight container into the interior of the tire and also for the pumping up of the tire.--

--20. (NEW) An apparatus for the sealing off of and pumping up of tires with tire troubles comprising a pressure-tight container



containing a sealing preparation and having an outlet valve for the sealing preparation and also a gas inlet, and a pressure source with which gas under pressure can be introduced into the pressure-tight container via the gas inlet.--

--21. (NEW) An apparatus in accordance with claim 20, wherein the pressure source is an air compressor.--

--22. (NEW) An apparatus in accordance with claim 20, wherein the pressure source is at least one pressure bottle with liquefied or compressed gas.--

--23. (NEW) An apparatus in accordance with claim 12, wherein the pressure-tight container contains a sealing preparation comprising a natural rubber latex, an adhesive resin compatible with the rubber latex, and a freezing protection agent, the solid content of said sealing preparation being in the range of 45% to 55% by weight of the total preparation, and the weight ratio of rubber latex to adhesive resin being 4:1 to 1:1.--

REMARKS

Claims 1-11 are pending in the present application. Claims 12-22 have been added to better define the invention. No new matter has been added.

Entry of the above amendments is also earnestly solicited. An early and favorable first action on the merits is earnestly solicited.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Edward H. Valance (Reg. 19,896) at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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0656-0253P  
Attachments

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Please insert on page 1, between lines 5 and 6, with the following:

--BACKGROUND OF THE INVENTION--

Please replace the paragraph beginning on page 2, line 7, with the following rewritten paragraph:

--When a tire puncture occurs, the sealing preparation is sprayed from the spray can into the interior of the tire through the tire valve and the tire is reinflated by means of the proplellant gas to a specific pressure which is of different levels depending on the leak. The tire is then driven a few [kilometres] kilometers, dependent on the nature of the defect, to distribute the sealing preparation in the interior of the tire and to seal off the defect.-

-

Please replace the paragraph beginning on page 2, line 16, with the following rewritten paragraph:

--In another apparatus, the sealing preparation is located in a compressible flask which is connected via an adapter to the tire valve with the valve insert having been previously removed. The sealing preparation is then sprayed into the tire by pressing the

flask. After the insertion of the valve insert, the tire is then pumped up again to a specific pressure with the aid of carbon dioxide cartridges.--

Please insert on page 3, between lines 19 and 20, with the following:

--SUMMARY OF THE INVENTION--

Please replace the paragraph beginning on page 4, line 8, with the following rewritten paragraph:

--According to one aspect of the present invention, a preparation for sealing a tire with a puncture comprises natural rubber latex. Preferably, the sealing preparation of the invention contains, apart from the natural rubber latex, an adhesive resin compatible with the rubber latex.--

Please replace the paragraph beginning on page 4, line 21, and spanning to page 5, line 8, with the following rewritten paragraph:

--For the adhesive resin, "compatible" signifies that the adhesive resin does not cause any coagulation of the rubber latex. As adhesive resins, there are to be understood resins which improve the ability of the rubber latex to bond to the tire. By way of example, resins can be used which are added to elastomers as tackifiers. The adhesives resins are preferably added in the form

of aqueous dispersions or emulsions of rubber latex. As a rule, these are aqueous dispersions. Particularly preferred are terpene-phenol-resins.--

Please replace the paragraph beginning on page 5, line 9, with the following rewritten paragraph:

--Latex which has been concentrated by centrifuging or [vaporisation] vaporization can also be used as natural rubber latex.--

Please replace the paragraph beginning on page 7, line 1, with the following rewritten paragraph:

--A frost protection agent is preferably added to the sealing preparations of the invention. Customary frost protection agents can be used, such as high boiling point, water soluble, difficult to ignite organic liquids, such as glycols, preferably ethylene glycol. Polyethylene glycols with molecular masses up to 300 to 400 g/mol can also be used. Through this addition, one obtains a good sealing at low temperatures, even when these are associated with the effects of wetness.--

Please replace the paragraph beginning on page 7, line 11, and spanning to page 8, line 6, with the following rewritten paragraph:

--For the thinning of the sealing preparations, a dispersion

agent can be used, as a rule, water. Furthermore, the sealing preparations of the invention can contain customary dispersants, emulsifying agents, foam [stabilisers] stabilizers and/or pH-regulators, such as ammonia or sodium hydroxide. Moreover, it can be of advantage for rapid sealing and for the sealing of larger holes to use one or more fillers. Suitable fillers are, for example, silicic acid, chalk, carbon black, fibrous materials, such as natural [fibres] fibers, chemical [fibres] fibers of natural polymers or synthetic [fibres] fibers, glass [fibre] fiber reinforced plastics, polystyrene particles, rubber dust which is produced by comminution of [vulcanised] vulcanized products such as tires, saw dust, moss rubber particles, particles of rigid foam for cut flowers and the like. Particularly preferred are fibrous materials, small rubber particles in combination with silicic acids and glass [fibre] fiber reinforced plastics.--

Please replace the paragraph beginning on page 8, line 16, and spanning to page 9, line 11, with the following rewritten paragraph:

--The solid component of the sealing preparation of the invention can amount to approximately 40 to 70% by weight, preferably to 45 to 55% by weight, and particularly preferably to about 50% by weight of the sealing preparation. With the sealing preparation without adhesive resins, the solid component comprises principally rubber. With the sealing preparation with adhesive

resin, the solid material component additionally contains the resin, providing it is a solid resin. The liquid component of the sealing preparation without adhesive resins consists of the carrier agent water for the rubber, and optionally of further liquid components, such as the frost protection agent and the dispersion agent used for thinning, preferably water. With the sealing preparation with the adhesive resin, the dispersion agent or emulsifying agent for the adhesive resin, preferably water, also belongs to the liquid component as does, if necessary, the liquid adhesive resin.--

Please replace the paragraph beginning on page 9, line 12, with the following rewritten paragraph:

--If fillers are used, then they are added to the sealing preparation in a quantity of about 20 to 200g per [litre] liter of sealing preparation, preferably 60 to 100g, or are put in the tire during fitting.--

Please replace the paragraph beginning on page 10, line 7, with the following rewritten paragraph:

--Accordingly, a second aspect of the invention provides an apparatus wherein the pressure source is a liquefied gas which is contained with the sealing preparation in the pressure-tight container.--

Please replace the paragraph beginning on page 10, line 11, with the following rewritten paragraph:

--Thus in use, one embodiment provides a hose with a screw adapter for the tire valve which is attached to the outlet valve of the pressure-tight container. A liquefied gas which is contained with the sealing preparation in the pressure-tight container serves as the pressure source. Because the liquefied gas, for example a propane/butane mixture, is not capable of operating at low temperatures and/or the sealing preparation freezes, then the content of the pressure-tight container, that is to say the spray can, is heated up with the heat source to ensure effective operation.--

Please replace the paragraph beginning on page 11, line 1, with the following rewritten paragraph:

--The same method [if sued] is used in the following embodiment. The pressure course is located outside the pressure-tight container, separate from the sealing preparation and can, for example, be an air compressor or a pressure flask or several gas cartridges with liquefied or compressed gas. With this embodiment, the pressure-tight container has a gas inlet through which the gas from the pressure flask or from the gas cartridge, or compressed air from the compressor, is introduced into the pressure-tight container. For the purpose, a hose-like connection is provided if



required, with a pressure relief valve and a throughflow restrictor between the gas inlet of the pressure-tight container and the pressure flask of the air compressor.--

Please replace the paragraph beginning on page 11, line 17, and spanning to page 12, line 6, with the following rewritten paragraph:

--In the case of a puncture, the sealing valve in the pressure-tight container is heated up by the heat source, insofar as it has frozen up, as was described above for the spray can. The pressure-tight container is connected to the tire valve via a hose with a screw adapter connected to the outlet valve of the pressure-tight container. Through the gas introduced from the pressure flask or from the compressor into the pressure-tight container, the sealing preparation is sprayed via the outlet valve and the hose into the interior of the tire [and the tire is subsequently pumped]. Insofar as the gas in the pressure flask is not capable of operating at low temperatures, the pressure flask can also be heated up by a heat source.--

Please replace the paragraph beginning on page 13, line 3, with the following rewritten paragraph:

--Furthermore, the heat source can consist of at least two mutually separated substances which, on mixing, liberate heat of reaction, such as for example heat of [neutralisation]

neutralization, heat of solution or heat of hydration. Thus, if required, calcium chloride, by way of example, can be dispensed into a water containing pad or cushion which is, for example, wound around the pressure-tight container or the pressure flask to be heated up. Through the heat of hydration, the sealing preparation and/or the propellant can be heated up to a temperature at which they are capable of functioning. Naturally, other devices can also be used in place of the cushion, for example, an upwardly open vessel with a jacket filled with water in which the pressure-tight container or the pressure flask which [have] has to be warmed up [are] is placed as required.--

Please replace the paragraph beginning on page 13, line 20, and spanning to page 14, line 7 with the following rewritten paragraph:

--A latent heat [store] source which liberates heat on its conversion can also be used as a heat [store] source. In this case, a cushion can also be considered which contains the latent heat store. Substances, which generate heat with a change of the state of aggregation or on phase transitions, can be used as the latent heat store. Thus, for example, cushions can be used which contain a sodium acetate solution. On pressing a metallic platelet, which is likewise contained in the cushion, the sodium acetate [crystallises] crystallizes and the heat of [crystallisation] crystallization is liberated.--

Please replace the paragraph beginning on page 14, line 8, with the following rewritten paragraph:

--In another embodiment, the apparatus has a pressure-tight container which is provided with an outlet valve and an outlet quantity restrictor and which contains a sealing preparation and liquefied sulphur hexafluoride or dinitrogenoxide as a pressure source for the introduction of the sealing preparation out of the pressure-tight container into the interior of the tire and also for the reinflation of the tire.--

Please replace the paragraph beginning on page 15, line 1, with the following rewritten paragraph:

--For dinitrogenoxide, the pressure-tight container must be suitable for operating pressures of about 50 bar. These propellants have the advantage that they are not combustible and can also be used at low temperatures without the aid of a heat source.--

Please replace the paragraph beginning on page 15, line 6, with the following rewritten paragraph:

--The manner of operation is the same as in a spray can. In this can, the outlet valve is also provided with a hose which has a screw adapter for the tire valve at its end. In addition, an outlet quantity restrictor is provided at the outlet valve in order to be able to effect metering of the sealing preparation at [the] high

pressures.--

Please replace the paragraph beginning on page 15, line 13, and spanning to page 16, line 7, with the following rewritten paragraph:

--With another embodiment in accordance with the invention, the apparatus has a pressure-tight container containing a sealing preparation and having an outlet valve for the sealing preparation and also a gas inlet to which a pressure source can be connected or is connected from which [pressurized] pressurized gas can be introduced into the pressure-tight container via the gas inlet. An air compressor or a portable pressure vessel of about 5 to 8 [1] liter volume which contains the air in compressed form can be used as the pressure source. The internal pressure of the tank amounts to about 8 to 10 bar. The pressure tank can, for example, be filled up at an air line at a filling station. Furthermore, a pressure flask or several gas cartridges with liquefied or compressed gas can be used as the pressure source. Propane/butane mixtures, sodium hexafluoride, dinitrogenoxide and others can also be used as gases.-

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Please replace the paragraph beginning on page 16, line 11, and spanning to page 17, line 4, with the following rewritten paragraph:

--When a puncture occurs, the pressure-tight container is connected to the tire valve. For this [purposes] purpose, the screw adapter which is located at the end of the hose connected to the

outlet valve of the pressure-tight container is screwed onto the tire valve. Insofar as a sealing preparation and/or a gas, designated a propellant gas in the following, are used which are not capable of operation at low temperatures, and if the tire must be sealed at such temperatures, then the pressure-tight container which contains the sealing preparation and the propellant gas, or the pressure-tight container containing only the sealing preparation and the pressure flask with the propellant gas, can be brought to an operating temperature with the aid of a previously described heat source. This heating up can also be carried out prior to connecting the tire valve and the pressure-tight container.--

Please replace the paragraph beginning on page 17, line 5, and spanning to page 18, line 8, with the following rewritten paragraph:

--On opening of the outlet valve, the sealing preparation is sprayed into the interior of the tire by the propellant gas which is either located in the pressure-tight container or is supplied to the pressure-tight container via its inlet valve from the pressure flask and the tire is pumped up to a pressure which depends on the size of the leak. In the embodiment with an air compressor or pressure tank as a pressure source, air is supplied to the pressure-tight [contained] container via its inlet valve on opening of the outlet valve in order to spray the sealing preparation into the interior of the tire to pump up the tire. Thereafter, the apparatus is

unscrewed from the tire valve and the tire is driven for a few [kilometres] kilometers so that the sealing preparation is distributed around the interior of the tire and the leak is sealed off. Thereafter, the apparatus is again connected to the tire valve and again the tire is pumped up to its desired pressure by the propellant gas which is either present in the pressure-tight container or is supplied to it from the pressure flask via the inlet valve. Instead of using a pressure flask, several gas cartridges can also be used as a pressure source in order to obtain the desired pressure. With the device with an air compressor or pressure tank, the tire is pumped up to its desired pressure with air which is supplied to the tire via the pressure-tight container. With bicycles, an air pump can also be used.--

Please insert on page 18, between lines 12 and 13 with the following:

--BRIEF DESCRIPTION OF THE INVENTION--

Please insert on page 19, before line 1, with the following:

--DETAILED DESCRIPTION OF THE EMBODIMENTS--

Please replace the paragraph beginning on page 19, line 14, with the following rewritten paragraph:

--The pressure-tight container is provided with a water-filled

jacket 11 which has filling stubs 12. Calcium chloride can be filled into this filling stub 12 as required. If the sealing preparation has frozen up at lower temperature, then it can be heated up in this way, by the heat of hydration which is liberated, to a temperature at which it is able to operate. The air compressor 1 is provided with an electrical [cabled] cable 13, the plug 14 of which fits into the cigarette lighter.--

Please replace the paragraph beginning on page 20, line 18, and spanning to page 21, line 11, with the following rewritten paragraph:

--Figure 2 shows another embodiment in which parts identical to Figure 1 are designated with the same reference numerals. In this device, a pressure flask 15 is provided at the pressure source and contains dinitrogenoxide or sulphur hexafluoride as the propellant gas. The pressure flask with the liquefied propellant gas is provided with a gas outlet 16 in which are located a shut-off valve 17, by which the throughflow quantity of the propellant gas can be simultaneously set, and also a pressure relief valve 18. The gas outlet 16 is connected to the gas inlet 3 at the pressure-tight container 4. The outlet valve 7 for the sealing preparation 6 is connected to a riser tube 19. Furthermore, the pressure-tight container 4 stands in a vessel 20, the wall of which is filled with water or can be filled with water to which calcium chloride can be

added if required in order to heat up the sealing preparation 6.--

Please replace the paragraph beginning on page 23, line 8, with the following rewritten paragraph:

--The test results are [summarised] summarized in the following Table 1.--

Please insert on page 23 after current last line, with the following rewritten paragraph:

--The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.--